

Technical Attachment

A Visit to the WSR-88D Radar Operations Center

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Introduction

During the second week of November 2002, I spent two days becoming familiar with the Radar Operations Center (ROC) in Norman, Oklahoma to supplement my background as a WSR-88D focal point. The ROC, established in 1988 and known until recently as the WSR-88D Operational Support Facility, is co-located with WFO Norman. Staff members of the ROC have backgrounds in the National Weather Service, Navy, Army, Federal Aviation Administration, as well as private contracting firms. This reflects the tri-agency (DoC, DoD and FAA) mission of the OSF/ROC since its inception. That mission is to provide a wide range of operational support to users of WSR-88D systems. The staff is also tasked with developing systems and evaluating new hardware and software builds to ensure quality products are deployed to the field. The tour guide for my visit was Daryl Covey, the Hotline manager for the ROC.

WSR-88D Hotline

The first branch of the ROC that I observed was the WSR-88D Hotline, a specialized service dedicated to providing operational support and expert consultation to all 158 WSR-88D sites 24 hours a day, seven days a week. Calls to the Hotline peak during the day, with fewer calls received at night. The Hotline operations area is staffed with field support personnel and electronics technicians, and is located in a large room consisting of several computer terminals and display monitors, somewhat similar to the operations area of an NWS forecast office. The Hotline answers questions and provides advice for problems concerning the WSR-88D system and its interfaces. Calls are logged into an informational database for the purpose of keeping track of a problem a particular site may be having with their radar. The database is continuously updated as progress on the call is made. I was able to observe a few calls fielded by the Hotline staff, and was able to see them expertly analyze and troubleshoot different issues.

Radar Operations Team

After becoming familiar with the WSR-88D Hotline, I visited with James Schofield, a meteorologist with the Radar Operations Team. Mr. Schofield gave me a general overview of the Radar Operations Team mission, and introduced me to some of the projects that were being developed. The Radar Operations Team is responsible for testing new hardware and software systems and evaluating new builds to ensure quality products are deployed to the field. The Radar Operations Team continues to build and improve open systems for the WSR-88D network. Open systems for radar applications give the operator a more user-friendly interface, and allow for easier system upgrades. As of November 2002, testing of the new Open Radar Product Generator (ORPG) Build 3.0 was being completed for the scheduled release date of March 2003. The Radar Operations Team works on a continuous schedule that plans for future builds of the ORPG; as soon as one build is released, the next is being developed. ORPG Builds 4.0 and 5.0 are already in the initial stages of planning and development. Another project being tested is an Open Principle User Processor

(OPUP), which will primarily be used by the Department of Defense. The OPUP will provide radar data faster and more efficiently, as compared to its predecessor used in the mid- and late 1990s. Another project planned for future release is the Open Radar Data Acquisition (ORDA) unit, which will provide faster communications and replace the current RDA system used by the NWS, FAA and Department of Defense.

Applications Branch

The Applications Branch of the ROC specializes in the development of new WSR-88D algorithms and the modification of existing algorithms. The Applications Branch also provides technical assistance concerning algorithms to users of WSR-88D data. I had the opportunity to discuss some of the projects being developed by the branch with meteorologists Randy Steadham and Robert Lee. Mr. Steadham briefed me on the new Volume Coverage Patterns (VCPs) that will be deployed in future builds of the ORPG. The new VCPs will mainly improve low-level vertical sampling in a shorter period of time. Four new VCPs are being tested. One of these, called VCP Gamma, may be included with ORPG Build 5.0. The new VCPs were designed to improve severe weather warning quality and lead times. Next, Mr. Lee introduced me to the new Mesoscale Detection Algorithm (MDA) that is being developed. The first phase of deployment for the new MDA will use a neural network to assign a probability of a tornado or severe weather associated with an identified velocity couplet. The second phase will upgrade the neural network to use near storm environment data. Both phases of the new MDA are planned for release with ORPG Builds 5.0 and 6.0, respectively.

Summary

Visiting the ROC was beneficial to me as a field forecaster and a WSR-88D focal point. I observed how dedicated each employee is in improving the quality of all aspects of the WSR-88D system, including but not limited to customer service, software and hardware development and testing, and applied research for future enhancement. Personnel at the ROC work in a team environment that benefits all operational users of WSR-88D systems, and ensures that the mission of the National Weather Service is fulfilled on a daily basis. The ROC welcomes the opportunity for more radar focal points to visit their facility.

Additional Information

The following Web sites provide additional information and details:

Radar Operations Center - <http://www.roc.noaa.gov>
Graphical Images of new VCPs - <http://www.osf.noaa.gov/app/vcp/index.htm>

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